

Amendments to the CLAIMS

1           1. (original) An apparatus, comprising:

2                   a microcontroller, said microcontroller comprising:

3                   two data pointers, each data pointer pointing to a data memory location; and

4                   a microcontroller core being capable of automatically incrementing/decrementing

5           a selected one of the two data pointers based upon a value of an automatic increment/decrement

6           (AID) enable bit and upon execution of a data pointer related instruction.

1           2. (original) The apparatus of claim 1, wherein the data pointer related instruction is a

2           data move instruction.

1           3. (original) The apparatus of claim 1, wherein the microcontroller core is further capable

2           of incrementing/decrementing the selected one of the two data pointers upon the execution of an

3           increment instruction.

1           4. (original) The apparatus of claim 1, wherein the microcontroller core automatically

2           increments/decrements the selected one of the two data pointers when the AID enable bit is at a

3           first logic value and does not automatically increment/decrement the selected one of the two data

4           pointers when the AID enable bit is at a second logic value.

1           5. (original) The apparatus of claim 1, wherein said microcontroller core further

2           comprises an Arithmetic Logic Unit (ALU) wherein the automatic incrementing/decrementing

3           instruction is performed.

1           6. (original) The apparatus of claim 1, wherein said apparatus comprises at least one of: a  
2 microwave oven, a refrigerator, a television, a radio, a VCR, a stereos, a laser printer, a modem,  
3 a disk drive, an automotive engine controller, an automotive engine diagnosticator, and a climate  
4 controller.

1           7. (original) In a microcontroller, a method for automatically incrementing/decrementing  
2 data pointers, said method comprising the steps of:  
3               selecting a data pointer from two data pointers;  
4               determining a value of a bit in a data pointer select register; and  
5               automatically altering the value in the data pointer, based upon the value of the bit  
6 in the data pointer select register.

1           8. (original) The method of claim 7, further comprising the step of:  
2               determining whether an instruction is a data pointer related instruction, wherein  
3 the step of automatically altering the value in the data pointer is further based upon the  
4 determination that the instruction is a data pointer related instruction.

1           9. (original) The method of claim 7, wherein the step of automatically altering the value  
2 in the data pointer comprises automatically incrementing the data pointer.

1           10. (original) The method of claim 7, wherein the step of automatically altering the value  
2 in the data pointer comprises automatically decrementing the data pointer.

1           11. (original) The method of claim 7, wherein the value in the data pointer is altered upon  
2           the value of the bit in the data pointer select register being at a first value and not altered upon  
3           the value of the bit in the data pointer select register being at a second value.

1           12. (original) The method of claim 7, further comprising:  
2                       wherein the step of automatically altering comprises the step of altering the value  
3           in the data pointer upon execution of the data pointer related prior to the automatically altering  
4           step, executing a data pointer related instruction, instruction.

1           13. (original) A microcontroller, comprising:  
2                       two data pointers;  
3                       a register, the register including at least a first bit and a second bit;  
4                       a selecting circuit for selecting one of the two data pointers based upon a value of  
5           the first bit of the register; and  
6                       a circuit for automatically altering the selected one of the two pointers based upon  
7           a value of the second bit of the register.

1           14. (original) The microcontroller of claim 13, wherein the register is a data pointer select  
2           register within a special function register.

1           15. (original) The microcontroller of claim 13, wherein the circuit comprises an  
2           adder/subtractor circuit for automatically incrementing/decrementing the selected one of the two  
3           data pointers based upon the value of the second bit of the register.

1           16. (original) The microcontroller of claim 15, wherein the adder/subtractor circuit is  
2   configured to add one to or subtract one from the selected one of the two data pointers based  
3   upon at least a third bit of the register.

1           17. (original) The microcontroller of claim 15, wherein said circuit further comprises an  
2   enabling circuit for enabling said adder/subtractor circuit following the execution of a data  
3   pointer related instruction by the microcontroller.

1           18. - 26. Canceled